

Mars 2020 Rover Mission: New Frontiers in Science

The Mars 2020 rover mission is the next step in NASA's robotic exploration of the red planet. The rover, based on the Mars Science Laboratory Curiosity rover now on Mars, will address key questions about the potential for life on Mars. The mission would also provide opportunities to gather knowledge and demonstrate technologies that address the challenges of future human expeditions to Mars.

Like the Mars Science Laboratory rover, which has been exploring Mars since 2012, the Mars 2020 spacecraft will use a guided entry, descent, and landing system which includes a parachute, descent vehicle, and, during the provides the ability to land a very large, heavy rover on the surface of Mars in a more precise landing area. The Mars 2020 mission is designed to accomplish several high-priority planetary science goals and will be an important step toward meeting NASA's challenge to send humans to Mars in the 2030s. The mission will conduct geological assessments of the rover's landing site, determine the habitability of the environment, search for signs of ancient Martian life, and assess natural resources and hazards for future human explorers. The science instruments aboard the rover also will enable scientists to identify and select a collection of rock and soil samples that will be stored for potential return to Earth in the future. The rover also may help designers of a human expedition understand the hazards posed by Martian dust and demonstrate how to collect carbon dioxide from the atmosphere, which could be a valuable resource for producing oxygen and rocket fuel.